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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,517	04/25/2006	Mira Muller	Becker-1015 US	1958
7733	7590	04/06/2009	EXAMINER	
WALKER & JOCKE, L.P.A. 231 SOUTH BROADWAY STREET MEDINA, OH 44256			XU, LING X	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			04/06/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/595,517	<b>Applicant(s)</b> MULLER ET AL.	
	<b>Examiner</b> Ling Xu	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 12-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/25/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: the BRIEF DESCRIPTION OF THE DRAWING(S) section is missing. Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Drawings***

2. Figure 1 appears to show a prior art structure and should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

3. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it recites that the structure comprising a secondary material. It is unclear if the claim implies that the structure also comprising a primary material. It is also unclear if the pore volume between 10 and 30% is the pore volume before firing or after firing the shaped part.

In claim 7, it is unclear if "the subsequent tempering process" is the same as the firing process. There is insufficient antecedent basis for the limitation "the subsequent tempering process" in the claim.

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It is suggested that the term "material containing carbon" in claim 7 to be changed to --carbon containing material -- so that the term used in claim 7 is consistent with the term recited in claim 1.

In claim 9, it is unclear what the terms "mineralogically" and "chemically" mean. It is also unclear what the differences between "mineralogically" and "chemically" are.

In claim 12, it is unclear if the pore distribution is referred to the pore distribution of the shaped part before or after the firing.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Fishler et al. (US 5,151,201).

Regarding claims 1-4, Fishler discloses a fired refractory shaped part comprising 40-85% of ZrO<sub>2</sub> with a grain size of less than 3mm (col. 6, lines 50-65). The shaped part has a porosity of about 15.1-20.5 % (see Tables II and III) and a carbon content of up to 30% (col. 6, lines 40-50). The particle size fractions of the refractory oxide are typically coarse of US mesh 8 and finer (2.38 mm or less) and fine (US mesh 325 and finer)( 44um or less) (col. 6, lines 50-65).

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Regarding claims 5-6, Fishler discloses that the zirconia may be up to 97% and partially stabilized zirconia may be up to 99% (col. 6, lines 35-50).

Regarding claims 8-10, Fishler discloses that the refractory shape part composition comprising ZrO<sub>2</sub>. The particle size fractions of the refractory oxide are typically coarse of US mesh 8 and finer (2.38 mm or less) and fine (US mesh 325 and finer) (44um or less) (col. 6, lines 50-65). The refractory oxide is primarily composed of fine particle size fractions, which has a grain size fraction of less than 44 um or 0.044 mm (col. 6, lines 50-60).

Regarding claim 11, it should be noted that the claimed subject matter is a fired shaped part which is a final product made from a recycled material. There is no evidence in the specification of the present application shows that there is any difference between the final product made by a recycled material and the final product made by a non-recycled material. Accordingly, it is expected that the fired shaped part made from a recycled material would be the same as that of made from a non-recycled material, such as those disclosed by Fishler, absent of any evidence showing to the contrary.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fishler et al., as applied to claim 1 above, and further in view of Sugie et al. (US 4,789,651).

As stated above, Fishler discloses the same fired refractory shaped part as recited in claim 1.

Fishler does not disclose that the fired refractory shaped part has an open porosity as recited in claim 7.

Sugie teaches that a fired refractory shaped part comprising baddeleyite ( $ZrO_2$ ) with a grain size up to 3mm, about 1-6% of  $MgO$  as a stabilizer (col. 5, lines 1-55). The porosity of the  $ZrO_2$  refractory shape part can be as low as 3.8% (see Table 1).

Sugie also teaches that the zirconia refractory body produced by conventional method is relatively highly porous with its apparent porosity being on the order of 17 to 20%, and is unsatisfactory in its mechanical and physical properties such as the bending strength thereof (col. 1, lines 30-45). The improved process disclosed by Sugie uses the mixture of the fine particles of zirconia of the monoclinic system with the fine particles of the stabilizer, which make it possible to produce a refractory body of zirconia of the predetermined shape. The improved refractory body is denser (lower porosity) and mechanically stronger than that obtained by the conventional method (col. 2, lines 50-60).

Therefore, it would have been obvious to one of ordinary skill in the art to use the mixture of zirconia and stabilizer particles suggested by Sugie in Fishler's oxide refractory oxide composition in order to produce a denser and mechanically stronger refractory body.

***Allowable Subject Matter***

6. Claims 12-13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling Xu whose telephone number is 571-272-7414. The examiner can normally be reached on 8:00 am- 4:30 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil, can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ling Xu



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Primary Examiner  
Art Unit 1794

/Ling Xu/  
Primary Examiner, Art Unit 1794

Lx  
April 1, 2009